

NEW SPECIES AND RECORDS OF TACHINIDAE (DIPTERA).

By C. H. CURRAN.

(Communicated by Frank H. Taylor, F.R.E.S., F.Z.S.)

(Two Text-figures.)

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The species described in the following pages are from various collections and are mostly new. A few previously-known species are redescribed.

BESSERIOIDES, n. gen.

Intermediate between *Besseria* Desv. and *Hyalomyia* Desv. The front is wide in both sexes, the abdomen intermediate in shape between the two genera, broader and less convex than in *Besseria* and much less flattened than in *Hyalomyia*.

Face very slightly receding, the oral margin very little produced; oral vibrissae weak, situated only a little above the oral margin; front about half as wide as greatest width of one eye; ocellars weak; cheeks one-sixth as wide as eye-height, the oral margin oblique on its anterior third. Antennae situated above the middle of the eyes, reaching almost to the oral margin, the third segment two and one-half times as long as wide, convex apically, the second segment short, arista bare. Parafacials bare; front with a single row of short, convergent bristles on either side. Mesonotum with only bristles laterally and very weak ones posteriorly; scutellum with two pairs of marginal bristles; sternopleurals varying from two to four in a horizontal line. Legs simple. Wings as in *Alophora* and *Besseria*. Abdomen oval, moderately convex, without bristles; in both sexes the third sternite is evidently absent, the first is broad, the second triangular and small; in the female the fourth and fifth sternites are large and convex and the piercing ovipositor rests at an angle of about 45° to the horizontal plane of the abdomen. Genotype, *Besserioides sexualis*, n. sp.

BESSERIOIDES SEXUALIS, n. sp.

Wings of ♂ tinged with brown, especially anteriorly; of ♀ somewhat paler; abdomen of ♂ rusty reddish-yellow, of ♀ shining black. Length 4 to 5.5 mm.

♂. Head reddish in ground colour, the occiput and parafrontals black; front, face and cheeks rich yellowish pollinose, the occiput cinereous; frontal vitta much wider than either parafrontal, the frontal bristles not extending above the upper fourth of the front. Occipital cilia extending only to the level of the antennae; pile of the occiput and cheeks whitish or yellowish, the cheeks without bristles. Palpi pale reddish. Antennae pale orange, the third segment darkened above on the apical half; arista brown, thickened on the basal fifth. Thorax black, moderately clothed with brownish cinereous pollen, the pleura with brighter coloured pollen. Hair short and black. Scutellum sometimes mostly reddish. Legs black; pulvilli brown. Wings tinged with brownish, the apical cell long petiolate. Appendage of fifth vein continued to the wing-margin in its full

strength; posterior cross-vein situated nearer the anterior cross-vein than to the bend of the fourth vein, which is a broad curve. Abdomen yellowish-red, shining, clothed with very short, appressed black hair. Genitalia rather small.

♀. Head wholly cinereous white pollinose, the parafrontals less thickly so above. Thorax with whitish cinereous pollen. Wings not so strongly tinged with brown. Abdomen shining black, the scutellum never reddish.

Type ♂, Laidley, Queensland, 8th Nov., 1927; allotype, ♀, Laidley, 5th Jan., 1928; paratypes, 5 ♂, 3 ♀, from Brisbane, Queensland, 1st, 5th, 6th and 7th Sept., 1927, Laidley, 22nd Nov., 1927, 2nd, 3rd, 5th, 6th January, 1928, and Gatton, Queensland, 29th August, 1928. Another ♀ was reared in the Laboratory at Brisbane, 11th Oct., 1927, from a mated pair. All the specimens were reared from a Pyrrhocorid bug, *Dysdercus sidae*.

The pupal characters are very similar to those of *Alophora* in that the posterior respiratory tubercles are very strongly produced and united only basally.

ALOPHORA AUREIVENTRIS Curran.

Bull. Ent. Res., xviii, 1927, 165.

There are before me six males and seven females of this species, all reared from *Dysdercus sidae*. The female was originally described as having broad yellowish pollinose bands on the bases of the abdominal segments, but that is not the case in the females at present before me. The pollinose bands are rather narrow, whitish or cinereous rather than yellowish and the fourth segment is almost wholly whitish or cinereous.

In the pupae there is a remarkable difference in the apparent lengths of the posterior spiracles, due, not to the actual length of these organs, but to the condition of the pupal skin. In one specimen the spiracles are almost wholly retracted, whilst a second has the pupal skin drawn out so that the spiracles project very strongly from a short pedicel and the normal wrinkling about their base is absent. It would be possible to draw certain conclusions from this variation but, inasmuch as the life history of the insect is to be dealt with elsewhere, I do no more than call attention to it.

Malloch has described several species of *Hyalomyia* from Australia, some of them falling within my conception of *Alophora*. I have separated the two genera on the presence of squamose hairs on the pleura of *Hyalomyia* and their absence in *Alophora*. If, as Malloch states, this is a sexual character, I can see no reason why the two genera should not be united, in which case the name *Alophora* would have precedence. The presence of more than one row of bristles or hairs on the front cannot be accepted as a generic character, since the distinction does not actually exist when a large number of species are examined. The Australian species of *Alophora* and *Hyalomyia* may be separated as follows:

- | | |
|---|------------------------------|
| 1. Abdomen red | 2 |
| Abdomen black | 3 |
| 2. Wings streaked with white in the costal cell, along the third and fifth veins and in the apical cell | <i>aureiventris</i> Curran. |
| Wings greyish yellow in front, paler behind | <i>rufiventris</i> Macquart. |
| 3. Mesopleura with squamose hairs | 4 |
| Mesopleura without squamose hairs | 5 |
| 4. Hind femora with long, yellow bristly hair on basal four-fifths | <i>lepidophora</i> Malloch |
| Hind femora wholly black-haired | <i>nigrihirta</i> Malloch. |
| 5. Wings almost uniformly coloured, or with paler base and dark stigmal spot | 6 |
| Wings with a pale brown cloud over the inner cross-vein and the costal cell brown | <i>costalis</i> Malloch. |

- 6. Squamae whitish or yellowish 7
Squamae brown *nigrisquama* Malloch.
- 7. Apical cross-vein almost transverse *lativentris* Malloch.
Apical cross-vein forming an almost even bow with the last section of the fourth
vein, the apical cell sharply pointed at its apex *aureiventris* Curran.

PROSENA Serville.*

Key to the Oriental and Australasian Species of Proseena.

- 1. Scutellum wholly dull black 2
Scutellum pale pollinose or pale in ground colour 4
- 2. Mesonotum with a broad, brown fascia behind the suture, otherwise pale pollinose
(from posterior view) 3
Mesonotum black vittate (*indecisa* Malloch?) *vittata* Macquart.
- 3. Wings brownish on the apical half, paler brownish on basal half .. *argentata* Curran.
Wings almost hyaline (Tasmania) *rufiventris* Macquart.
- 4. Femora reddish or yellowish on at least the basal half 5
Femora black 16
- 5. Abdomen without a median shining black vitta 6
Abdomen with the median vitta shining black *dorsalis* Macquart.
- 6. Cheeks wholly white pollinose, without a reddish-brown spot between the eye and
oral margin 12
Cheeks with a reddish-brown or dark spot extending from the eyes to the oral
margin 7
- 7. Mesonotum with an incomplete brownish fascia behind the suture *bella* Curran.
Mesonotum vittate 8
- 8. Tibiae brown 9
Tibiae reddish; frontal vitta rusty-reddish (Australia) *variegata* Curran.
- 9. Abdominal pollen tessellate 10
Abdominal pollen not tessellate 11
- 10. Thorax black, the humeri yellow in ground colour (Tasmania) .. *dispar* Macquart.
Thorax brownish-red in ground colour (Queensland) *Austrodexia taylori*, n. sp.
- 11. Thorax reddish in ground colour, grey pollinose, blackish or brownish-red vittate
..... *dimidiata*, n. sp.
Thorax not vittate, blackish? in ground colour *moluccana* Doleschall.
- 12. Legs long; abdomen black fasciate *moluccana* Doleschall.
Legs of normal length; abdomen not fasciate 13
- 13. Mesonotum with fine, yellowish hair *sibirita* Fabricius.
Mesonotum with only coarse black hair, except on the sides 14
- 14. Parafacials with distinct yellowish hair; front with black hair *facialis*, n. sp.
Parafacials without any trace of hair; front with sparse yellowish hairs
inwardly 15
- 15. Scutellum black, grey pollinose with dark border *marginalis*, n. sp.
Scutellum reddish in ground colour *malayana* Tns.
- 16. Legs wholly black, pleura pale pollinose 17
Tibiae reddish; mesopleura black pilose *varia* Curran.
- 17. Mesonotum pale pilose; legs very long *zonalis* Curran.
Mesonotum black-haired 18
- 18. Scutellum wholly dark in ground colour 19
Scutellum reddish *scutellaris* Curran.
- 19. Mesopleura black pilose *surda*, n. sp.
Mesopleura pale yellow pilose *nigripes* Curran.

PROSENA DISPAR Macquart.

Dipt. Exot., Suppl. iv, 1852, 203.—There is a female from Jenolan Caves, N.S.W. (J. C. Wiburd), which traces to *dispar* in the key. The species was originally described from Tasmania and the identification must be considered doubtful until the type has been examined.

PROSENA VARIA Curran.

Ann. Ent. Soc. Amer., xxii, 1929, 509.—One male, Jenolan Caves, N.S.W. (J. C. Wiburd).

* *P. tenuis* Malloch and *parva* Malloch are not included.

PROSENA ARGENTATA CURRAN.

Ent. Mitt., xvi, 1927, 348.—♂ and ♀ from Herberton, Queensland, Dec., 1910, and Jan., 1911, in Wainwright collection.

PROSENA BELLA CURRAN.

Ent. Mitt., xvi, 1927, 347.—♂. Kuranda, Queensland (Dodd).

PROSENA DIMIDIATA, n. sp.

Very similar to *Austrodezia taylori* in structure, but with the wings brown on the apical half and the abdominal pollen not tessellate. Length, 11 to 13 mm.

♀. Head reddish, greyish-yellow pollinose; occiput black in ground colour, the pollen of the front with brown tinge, the frontal hair and occipital pile yellow. Front four-sevenths as wide as eye, with seven pairs of frontals, the upper pair divergent or reclinate, the two pairs of orbitals strong; ocellars long; outer verticals short; occipital cilia not extending to lower edge of eyes, several bristly black hairs near the vertex. Cheeks hardly one-third as wide as eye-height, with a few obscure yellow hairs near the anterior oral margin. Proboscis almost one half longer than head-height, brown, the broad base and the labella reddish. Palpi and antennae reddish. Facial carina of moderate width, flattened or slightly grooved above. Mesonotum blackish or deep brown, the conspicuous vittae blackish, the pollen greyish. Scutellum reddish, with darker base, black haired, with three pairs of marginals, the apical pair cruciate, the pair of discals weak. Acrosticals 0-1; dorsocentrals 3-3; sternopleurals 1-1. Legs elongate, brown, the coxae and femora reddish, the posterior four femora brown apically. Wings cinereous-hyaline on basal half, brown apically. Squamae with brown tinge; halteres yellow. Abdomen with the apical half of the second and third and apical third of the fourth segment brownish or brownish-black, the second and following segments reddish basally and rather thickly grey pollinose, the pollen separated on the intermediate segments by a narrow black vitta and on the fourth by a very broad one. The hair is black dorsally, yellowish ventrally; first segment without marginals, second with one pair, third and fourth each with a row.

Holotype ♀ and two ♀ paratypes, Kuranda, Queensland, a paratype collected by F. P. Dodd, the others without collector's name. Type in the collection of the School of Public Health and Tropical Medicine, University of Sydney, paratype in American Museum of Natural History.

PROSENA FACIALIS, n. sp.

Related to *malayana* Townsend, from which it differs in having the frontal hair black, scattered and obscure, with pale yellow hairs on the parafacials. Length, 6.5 to 11 mm.

♂. Head yellowish, the occiput and upper part of the front black in ground colour, whitish pollinose. Front half as wide as eye, clothed with black hair; about ten pairs of frontals; ocellars long; outer verticals absent. The black occipital cilia in large specimens are usually two-rowed and extend well onto the cheeks, in small specimens more often in a single row and not extending across the cheeks. Occipital pile whitish. Cheeks half as wide as eye-height, with fine yellowish or fuscous hair near the anterior oral margin; parafacials with very fine scattered yellow hair on upper half. Proboscis brown or black, reddish basally, twice as long as head-height. Palpi and antennae reddish. Facial carina moderate in width, rather flattened. Thorax black, cinereous pollinose, the four narrow brown vittae well marked; scutellum varying from reddish to almost all black,

the apex always more or less reddish beneath the grey pollen; three pairs of marginals, the apical pair cruciate, and a pair of weak discals. Hair black, on the pleura fine and yellowish. Acrosticals 1-1; dorsocentrals 3-3 or 2-3; sternopleurals 1-1. Legs reddish, tarsi black, posterior tibiae and the apices of their femora usually with brown stain. Wings cinereous hyaline. Squamae with greyish tinge, their border more yellowish. Halteres yellow. Abdomen with the sides of the first three segments reddish, the third black on apical third, the basal two with a small posterior black spot on either side, the whole cinereous pollinose, the median vitta, apex of third segment and base of the fourth with more brownish pollen. Hair black, pale on ventral surface of first segment. First and second segments with pair of marginals, third and fourth with a row.

Holotype, ♂, Kodaikanal, French Indo China, May, 1913. Paratypes, 31 males from French Indo-China. Type in American Museum of Natural History.

PROSENA MALAYANA Townsend.

More than a dozen specimens from Java and various localities in Queensland. I believe that *doddi* is the same and have placed my specimens under *malayana*, describing those forms in which the face is distinctly haired as *facialis*.

PROSENA MARGINALIS, n. sp.

Thorax black, cinereous pollinose; abdomen reddish-yellow with black median vitta and cross-bands; femora reddish. Length, 8.5 to 9.5 mm.

♂. Head yellow, white pollinose, the upper fourth of the front and the occiput black in ground colour; front slightly more than two-fifths as wide as greatest width of eye, with about nine pairs of bristles; frontal vitta pale orange; outer verticals scarcely differentiated; the single row of black occipital cilia does not reach the lower border of the eyes; occiput and cheeks whitish-haired, a few hairs near the oral margin; cheeks three-eighths as wide as eye-height, without dark band. Proboscis somewhat more than one-half longer than head-height, reddish on basal third. Antennae reddish-yellow, the arista reddish-brown. Facial carina of moderate width, not grooved. Thorax thickly cinereous pollinose, the vittae narrow and moderately distinct, each hair arising from a tiny dark puncture. Pleura yellow-haired, mesonotum and scutellum black-haired, the border of the scutellum dull black. Acrosticals 1-1; dorsocentrals 3-3; sternopleurals 1-1; scutellum with three pairs of marginals, the apical pair weaker and cruciate, and a pair of discals. Legs reddish, tarsi black, posterior femora brownish on apical fourth; posterior four coxae black, grey pollinose. Wings cinereous hyaline; squamae white; halteres yellow. Abdomen with a broad median vitta, apical fourth of third segment and whole of the fourth, black, the apex of the second segment very narrowly blackish, more conspicuously so laterally, the whole abdomen cinereous pollinose with the apices of the intermediate segments less thickly so, the pollen slightly tessellate. First segment with weak, second with pair of strong marginals, the third and fourth with row. Abdomen black-haired except at base of under side.

♀. Very similar, but the abdomen more oval. Front three-fourths as wide as eye, widening anteriorly; two pairs of orbitals; facial carina sometimes weakly grooved. Fourth abdominal segment mostly reddish in ground colour, black dorsally on the basal half of the disc.

Holotype, ♂, Brisbane, Queensland, 27th Nov., 1925; allotype, ♀, Brisbane, 3rd Dec., 1925. Paratypes, 8 ♂, Brisbane, 24th October, 1926, 27th Nov., 1925, and 10th Dec., 1925; 2 ♀, Sherwood, Queensland, 1st Dec., 1924, all collected by Mr.

J. Mann. Type specimen in Mann collection, paratypes in American Museum of Natural History.

This species looks very like a small example of *malayana* Townsend, but the blackish-margined scutellum is very distinctive.

PROSENA SURDA, n. sp.

Resembles *marginalis*, but is at once distinguished by the wholly blackish legs. Length, 6 to 10 mm.

♂. Black, the abdomen with reddish-yellow markings. Head black, grey pollinose, the face, cheeks, antennae and palpi reddish. Front one-fifth as wide as greatest width of eye, with twelve to fourteen pairs of frontals and a few black hairs; ocellars long; outer verticals absent; occipital cilia extending to the black-haired cheeks; occipital pile with yellow tinge. Cheeks two-sevenths as wide as eye-height, usually without hairs near anterior oral margin. Proboscis black, more or less reddish basally, twice as long as head-height. Arista brownish-red, the rays brown. Facial carina rather narrow, rounded. Thorax and scutellum densely grey pollinose, usually with little trace of slender dark vittae without magnification. Hair black. Acrosticals 1-1; dorsocentrals 3-3; sternopleurals 1-1. Scutellum with three pairs of marginals, the apical pair cruciate, and usually a poorly differentiated pair of discals. Legs black, of ordinary length, the knees more or less reddish. Wings cinereous hyaline, more or less brownish tinged in front. Squamae whitish. Halteres yellow. Abdomen with a median vitta which is usually quite broad, the apices of the segments rather narrowly and the whole of the fourth segment black in ground colour, the whole pollinose, the pale portions and basal half or more of the fourth segment with greyish, the remainder with brownish pollen. Hair black, pale only at base of under surface. First and second segments with pair of marginals, the third and fourth with row.

♀. Front five-eighths as wide as eye, rather ochreous pollinose, with five pairs of frontals, the upper pair divergent, and two pairs of orbitals; outer verticals scarcely differentiated; dorsocentrals 2-3. Abdomen reddish, the broad apices of the first three segments more or less blackish or brownish, the fourth segment brownish on basal half; no median vitta; pollen somewhat tessellate; first segment without marginals.

Holotype ♂, allotype ♀, and ten paratypes (♂), Kuranda, Queensland (F. P. Dodd), forwarded by Mr. Colbran Wainwright. Types in collection of Mr. C. J. Wainwright.

This species resembles *malayana* Townsend, but the black pilose pleura at once distinguishes it. Its form is more slender than in that species and also than is the case with *marginalis* Curran. There is a greater variation in size than has been noted for most of the other species belonging to the genus.

AUSTRODEXIA Malloch.

PROC. LINN. SOC. N. S. WALES, lv, 1930, 122.

All the characteristics of *Prosema*, but the proboscis is not or only slightly longer than the height of the head. The palpi are short, never longer than twice the greatest width of the proboscis; propleura and prosternum bare, infrascamial setulae and the posterior sublateral bristles absent. None of the species before me have an appendage at the bend of the fourth vein, but this character may be present. Most of the species described from Australia and Tasmania as belonging to the genus *Dexia* belong here or to *Lasiocalypter*.

Genotype, *AustroDEXIA setigera* Malloch.

The following species are before me:

Table of Species.

1. Femora black except at the apices	2
Femora reddish, darker toward the apices	<i>taylori</i> , n. sp.
2. Palpi black; thorax of ♂ silvery-white from anterior view	<i>longipes</i> Macquart.
Palpi reddish or brownish-red	3
3. Abdomen black	4
Abdomen reddish with median black vitta and apex	<i>setigera</i> Malloch.
4. Mesopleura almost all black-haired	<i>unipuncta</i> Malloch.
Mesopleura with bright yellow hair	5
5. Tibiae and the broad apices of the femora reddish (♂)	<i>longipes</i> Macquart.
Legs normally all black or brownish	6
6. Anterior cross-vein conspicuously clouded with brown	<i>communis</i> Malloch.
Anterior cross-vein not clouded (♀)	<i>longipes</i> Macquart.

AUSTRODEXIA UNIPUNCTA Malloch.

PROC. LINN. SOC. N. S. WALES, IV, 1930, 126.

Four ♂, one ♀, Katoomba, N.S.W., January, 1921 (Dodd, jnr.); ♀ "N.S.W."; ♂, ♀, Jenolan Caves, N.S.W. (J. C. Wiburd).

AUSTRODEXIA SETIGERA Malloch.

PROC. LINN. SOC. N. S. WALES, IV, 1930, 124.

Four ♂, Herberton, Queensland, November, 1911; two ♂, Herberton, December, 1910 (F. P. Dodd).

AUSTRODEXIA COMMUNIS Malloch.

PROC. LINN. SOC. N. S. WALES, IV, 1930, 125.

Very similar to *unipuncta*, but the pleura are entirely pale-yellowish pilose, etc. Length 8 to 12 mm.

♂. Differs from *unipuncta* as follows: front one-fourth as wide as either eye; parafrontals brownish-pollinose on upper third or more; mesonotum a little more evenly and densely cinereous-pollinose, the dark vittae very narrow and brownish; two intra-alar bristles; pleura wholly pale-yellow pilose; legs, wings and abdomen the same; posterior tibiae with a strong posterodorsal bristle near the middle.

Three ♂, N.S.W. (Hy. Edwards Coll.); two ♂ from Sydney, N.S.W., Feb., 1923 (F. H. Taylor); one ♂, Brisbane, Queensland, 23.10.1926 (J. Mann).

AUSTRODEXIA TAYLORI, n. sp.

Rusty-brownish with yellowish-tinged pollen; legs long; wings with brown tinge, especially marked along the veins; thorax vittate. Length, 12 to 14 mm.

♀. Head yellowish in ground colour, the parafrontals and occiput brown, whitish pollinose. Front slightly more than half as wide as greatest width of eye, the vitta mostly brown; nine pairs of frontals, the upper pair reclinate; ocellars long, outer verticals stout; the black occipital cilia extend to the lower edge of the eyes and there are a few black hairs behind them near the vertex; occipital pile pale yellowish; cheeks about three-sevenths as wide as eye-height, with a few yellowish hairs near the oral angles; proboscis reddish, shorter than height of head; palpi and antennae reddish. Facial carina broad, shallowly grooved. Frontal hair yellow. Cheeks with reddish-brown stripe from eye to oral margin. Mesonotum and scutellum yellowish-grey pollinose, the pleura cinereous; dorsum black-haired, the pleura yellow-pilose. Acrosticals 1-1; dorso-centrals 2-3; sternopleurals 1-1. Scutellum with three pairs of marginals, the apical pair cruciate, and a pair of weak discals. Legs brown, an obscure median band on the tibiae, the femora and coxae reddish. Wings with strong yellowish-

brown tinge. Squamae luteous greyish. Halteres yellow. Apices of abdominal segments narrowly blackish, the abdomen with tessellate yellowish-tinged pollen. First and second segments with pair of marginals, third and fourth with row.

♂. Front three-fourteenths as wide as either eye, the vitta almost obsolete above; pale hair long; outer verticals hair-like; no setae behind the black occipital cilia; proboscis brown, the third antennal segment mostly brownish; pollen of thorax and abdomen more cinereous and less tessellate on the abdomen, which is more slender and tapering and has the first segment and under surface pale-pilose and a median dorsal vitta much more pronounced. The posterior legs are very long.

Holotype ♀, allotype ♂ and paratype ♀, Kuranda, Queensland; ♀, Townsville, Queensland (F. P. Dodd); 2 ♂, Roberts Plateau, Macpherson Range, Queensland, February–March, 1929 (Dr. A. J. Turner). Holotype in the collection of the School of Public Health and Tropical Medicine, University of Sydney, paratype in American Museum of Natural History, the allotype in the collection of Mr. C. J. Wainwright.

This species is rather intermediate between *Austrodexia* and *Prosenia*. It has the proboscis either a little longer than the head-height, or a little shorter, depending upon whether or not the labellae are folded back or projecting.

AUSTRODEXIA LONGIPES Macquart.

Dexia longipes Macquart, *Dipt. Exot.*, Suppl. 1, 1846, 187.—*Rhyncodexia longipes* Malloch, *Proc. Linn. Soc. N.S.W.*, lv, 1930, 119.

I have before me four males and ten females which I believe to be this species. In the male the mesonotum is white-pilose and, when viewed from in front, appears silvery owing to the whitish pollen on the mesonotum; pleura and abdomen yellow-pilose; from dorsal view the mesonotum appears yellowish-pollinose and quite dull. In the female the pollen is cinereous-yellow and the dark mesonotal vittae are very distinct. The abdominal pollen is strongly tessellate; wings cinereous hyaline, slightly tinged with yellow; legs black. In the female the pleura are white-pilose, the mesonotum mostly black-haired.

♂, 8 ♀, Jenolan Caves, N.S.W. (J. C. Wiburd); ♀, Broken Hill, N.S.W. (D. H. Wallace); 3 ♂, 1 ♀, Katoomba, N.S.W. (Dodd, junr.).

LASIOCALYPTER Malloch.

Proc. Linn. Soc. N. S. Wales, lv, 1930, 119.

Similar to *Prosenia*, but the second section of the proboscis is always shorter than the height of the head; much more closely related to *Austrodexia*, but distinguished by having the lower lobe of the squamae pilose on the disc of the outer posterior area. The general characters of the three genera are the same: all have the face strongly carinate, arista long pilose; parafacials bare; propleura and prosternum bare, infrasquamal setulae absent; legs elongate and the abdomen of the female shorter and broader than in the male. The bristles are long and slender, shorter and coarser in the female.

Genotype, *L. flavohirta* Malloch.

The three genera are separable as follows:

- | | |
|--|--|
| 1. Squamae bare except on the rim | 2 |
| Squamae pilose on outer posterior surface of the disc | <i>Lasiocalypter</i> Malloch. |
| 2. Apical section of proboscis very much longer than the head-height | <i>Prosenia</i> St. Fargeau et Serville. |
| Apical section of the proboscis at most scarcely longer than the head-height | <i>Austrodexia</i> Malloch |

Key to the species of Lasiocalypter.

1. Pleura wholly yellow-haired 3
 Mesopleura black-haired 2
2. Pile of the squamae black *nigrihirta* Malloch.
 Pile of the squamae yellow *basalis*, n. sp.
3. Mesonotum of male black-haired, tibiae black *apicalis*, n. sp.
 Mesonotum of male mostly yellow-haired; tibiae reddish
 *tessellata* Macquart; *flavohirta* Malloch.

LASIOCALYPTER NIGRIHIRTA Malloch.

PROC. LINN. SOC. N. S. WALES, IV, 1930, 119.

Two ♂, two ♀, Jenolan Caves, N. S. Wales (J. C. Wiburd).

LASIOCALYPTER BASALIS, n. sp.

Black; wings yellowish basally; squamae yellow. Length, 8 mm.

♂. Middle of face whitish, the sides and cheeks reddish in ground colour; head whitish pollinose. Front less than one-fifth as wide as greatest width of eye; frontal vitta obsolete above, wide below; eleven or twelve pairs of frontals and a much finer and shorter bristle between each of the long ones in the rows; hair on the parafrontals sparse and white. Occiput and cheeks pale-yellow pilose, the black occipital cilia expanding into several rows behind the lowest third of the eyes. Cheeks three-eighths as wide as eye-height; only one or two very short and weak bristles above the vibrissae; carina broad, not sulcate. Palpi dull reddish. Antennae reddish, the third segment slightly darkened on the apical half, almost three times as long as the second; arista ferruginous basally, the rays long and black. Thorax thickly cinereous-pollinose, the dark vittae narrow, distinct on the anterior half. Hair black, yellow on the lower half of the pleura. Acrosticals 1-2; dorsocentrals 3-3; intra-alars 2; three pairs of marginal scutellars, the apical pair more or less cruciate, the hair on the disc long; sternopleurals 1-1. Legs black; coxae and the base of the femora yellow-haired; pulvilli short. Wings tinged with brown on apical half, with luteous basally. Squamae and halteres yellow. Abdomen black, cinereous-pollinose, a median vitta and the rather broad apices of the segments black; pollen tessellate on both the dorsum and venter; hair black, yellow on the under surface except apically. First, second and fourth segments each with a pair of marginals, the third with a row; second and third segments each with a pair of discals.

Type ♂ and paratype, Roberts Plateau, Macpherson Range, Queensland, Feb.-March, 1929 (Dr. A. J. Turner), in collection of the School of Public Health and Tropical Medicine, University of Sydney.

LASIOCALYPTER APICALIS, n. sp.

Black; mesopleura black-pilose; apex of the wing with a very broad, oblique blackish infuscation. Length, 8 to 9 mm.

♂. Head black, white-pollinose, the face and cheeks reddish or reddish-yellow in ground colour. Front one-fifth as wide as greatest width of either eye, the blackish frontal vitta obsolete above. About twelve pairs of frontals and a long black hair between the bristles in the rows; very few hairs outside the rows; ocellars long. Pile of the occiput and cheeks yellowish; the black occipital cilia expand to form three irregular rows behind the lowest third of the eyes and the upper part of the cheeks. Cheeks somewhat less than half as wide as the eye-height. Two or three short bristles above the vibrissae. Palpi short, reddish. Antennae reddish, the third segment usually blackish on the apical half; arista reddish with brown base and long blackish rays. Thorax densely cinereous-

pollinose, the narrow, dark vittae distinct; hair black, on the pleura wholly yellow. Acrosticals 1-1; dorsocentrals 3-3; intra-alars 2, the anterior one fine; three pairs of marginal scutellars, the apical pair cruciate; sternopleurals 1-1. Legs black; coxae and bases of the femora yellow-pilose. Wings cinereous-hyaline, with a broad blackish cloud extending from the apical third of the wing to or beyond the apex. Squamae cinereous-yellow; with yellow pile; halteres yellow. Abdomen black cinereous-pollinose, a narrow median vitta and the apices of the segments dark. Hair black, yellow on the first segment and the venter. First and second segments each with a pair of marginals, third and fourth each with a row; second to fourth segments each with one or two irregular pairs of discals.

♀. Front a little more than half as wide as greatest width of either eye; frontal vitta slightly wider than either parafrontal; six or seven pairs of frontals, two pairs of orbitals and a very few scattered black hairs on the front; outer verticals long; dark abdominal fasciae broader.

Type ♂, allotype ♀ and 2 ♂, 7 ♀, Jenolan Caves, N.S.W. (J. C. Wiburd). Types in the collection of the School of Public Health and Tropical Medicine, University of Sydney.

LASIOCALYPTER TESSELLATA Macquart.

Dezia tessellata Macquart, *Dipt. Exot.*, Suppl. iv, 1852, 202 (229).—*L. flavohirta* Malloch, *Proc. Linn. Soc. N.S.W.*, lv, 1930, 121.

Black, with cinereous-yellow pollen, the apices of the femora and the tibiae reddish; mesonotal vittae distinct; a median abdominal vitta and the segmental apices darker. The thorax is wholly clothed with yellowish hair in the male, but in the female it is mostly black on the mesonotum and scutellum. Length, 10 to 12 mm.

In general this species is similar to the others in chaetotaxy, etc., but it is a little more robust. It fits Macquart's description better than any of the others and I have tentatively determined it as his species.

Three ♂ and two ♀ from N.S.W.

AUSTRALOTACHINA, n. gen.

A peculiar genus resembling some of the species of *Calliphora* and with very large hypopygium.

Head at oral margin six-sevenths as long as high, the face almost perpendicular, the lower half strongly produced; no facial depression, the median part visible in profile on its whole length; parafacials narrow; front very narrow, the upper half only a little wider than the ocellar triangle, the anterior half triangular; ocellar bristles strong; two pairs of frontals below the base of the antennae; hair of the head black, the middle of the occiput with sparse yellow pile on the lowest two-thirds; cheeks a little more than three-sixteenths as wide as eye-height, clothed, except on the upper edge, with sparse, coarse black hair. Vibrissae situated more than the length of the second antennal segment above the oral margin, the ridges with three or four bristles immediately above them. Palpi cylindrical, black-haired. Antennae short, extending only three-fifths the distance to the oral margin; third segment two-thirds longer than the second, elongate oval; arista short pubescent on the basal half, the basal fifth swollen. Eyes bare. Proboscis short. Acrostical bristles 2-3; dorsocentrals 3-4; posterior sublateral absent; two intra-alars; four pairs of strong marginal scutellars, the apical pair cruciate; sternopleurals 2-1; propleura and prosternum bare; infrasquamal setules present. Anterior femora with a row of posteroventral bristles; their tibiae with

one posterior and one anterodorsal bristle; middle tibiae with two anterodorsal, one anteroventral and two posteroventral bristles; posterior tibiae with two antero- and postero-dorsal bristles and three anteroventrals. Pulvilli elongate. Wings with the apical cell narrowly open, ending a little before the apex; bend of fourth vein not acute; posterior cross-vein joining fourth vein beyond the middle of its penultimate section; two bristles at the base of the third vein. Abdomen egg-shaped, moderately convex, the hypopygium large. First segment without dorsal bristles, the second with a row of marginals; third and fourth each with a row of marginals and discals as well as a few scattered bristles, the hair all erect or nearly so. First segment of the hypopygium large, with a row of bristles apically, the second segment still larger and with bristles on the apical half, the following part with short, appressed hair; posterior forceps very large, broad and moderately convex, enclosing the genital organs, the basal half with rather dense appressed hair. The lobes of the fifth sternite extend, as large triangles, to close the sides of the pocket formed by the hypopygium. The fourth sternite is apparently linear or even absent, but I am unable to see this part.

Genotype, *Australotachina calliphoroides*, n. sp.

AUSTRALOTACHINA CALLIPHOROIDES, n. sp.

Black, the thorax and abdomen with metallic green or blue reflections. Length, 5.5 to 7 mm.

♂. Head with moderately thick dull-cinereous pollen, the parafacials and parafrontals cinereous-white. Eight to ten pairs of fine frontal bristles, the upper ones becoming hair-like, the hair situated in a row very close to the frontals. Outer vertical very weak; occipital cilia moderately long. Palpi black; antennae black. Thorax thinly cinereous-pollinose, the vittae very indistinct; sometimes a distinct metallic-green reflection. Hair wholly black, sub-erect, long on the apical half of the scutellum; pteropleural bristle rather weak. Legs black. Wings brownish; squamae yellowish-tinged. Halteres with black knob. Abdomen rather thinly cinereous-pollinose, the first segment wholly and the apex of the second darker; with strong metallic-greenish or bluish reflections. Hair erect or nearly so.

♀. Front almost half as wide as greatest width of either eye, gradually widening anteriorly; two pairs of frontals; outer verticals almost as long as the verticals; first and second abdominal segments without dorsal bristles, the third to fifth each with a row of marginals. The fifth segment is very narrow; sixth divided in the middle dorsally, the opening at the apex V-shaped, at the lower ends connected on either side with a large, elongate-oval, pad-like lobe corresponding to the lobes in the male; these lobes are very rough interiorly and evidently setulose, exteriorly with ordinary hair.

Type ♂ and two paratypes, Kuranda, Queensland, in Deutsches Entomologisches Museum; allotype and 9 ♂ paratypes, Kuranda, 1910 (F. P. Dodd), in C. J. Wainwright collection; paratypes in American Museum of Natural History.

EIPOGONOIDES, n. gen.

Related to *Eipogona* Rondani, but the eyes are sparsely pilose; differs from *Chaetosturmia* Villeneuve, from Africa, in its smaller size, shape of head and the presence of only three sternopleurals.

Face not retreating, sub-carinate, the oral margin not produced; parafacials with hairs on upper two-thirds or more; front wide in both sexes, with a secondary row of frontals in the ♂ and partial row in the ♀. Ocellars long; outer verticals well developed in both sexes; cheeks one-seventh as wide as eye-height; eyes

sparsely haired; proboscis short; palpi normal. Antennae arising about the middle of the eyes and reaching three-fourths the distance to the oral margin. Bristles of thorax complete; acrosticals 3-3; dorsocentrals 3-4; posterior sublateral present; supra-alars 3; sternopleurals 2-1; 3 pairs of marginal scutellars, the apical pair weak and either divergent or decussate, a weak pair of discals. Propleura bare; infrascumal setulae absent. Legs normal; middle tibiae with one strong and two or three poorly differentiated anterodorsal bristles; pulvilli small in both sexes. Wings normal, the apical cell open, ending moderately close to the apex of the wing; posterior cross-vein joining penultimate section of fourth vein beyond the middle; third vein with two or three bristles at the base. Abdomen short oval, without true discals on the intermediate segments but with rather coarse, erect hair; first and second segments each with a pair of marginals, third with a row, the fourth with bristles except apically.

Genotype, *Eipogonoides ruficornis*, n. sp.

EIPOGONOIDES RUFICORNIS, n. sp.

Antennae reddish-yellow; legs reddish, the tarsi black. Length 5.5 to 6 mm.

♂. Face and cheeks reddish in ground colour, the head otherwise blackish, wholly covered with yellowish pollen, the parafrontals less thickly so. Front almost three-fourths as wide as either eye, slightly widening anteriorly; parafrontals a little wider than the brownish-red frontal vitta; a row of about nine frontals on either side and a secondary row outside these, the hair rather coarse and erect; lower three frontals below the base of the antennae, the upper three or four reclinate; outer verticals three-fourths as long as verticals; occiput, cheeks and parafacials with short, fine black hair, the latter with hair on their whole length, narrower than the third antennal segment and narrowing below. Proboscis brown, the labellae and palpi reddish-yellow. Vibrissae situated only a little above the oral margin, the ridges with about five bristles on the lowest third. Antennae orange; third segment a little more than twice as long as the second, rather angulate at the upper apex; arista brown, thickened on the basal two-fifths, microscopically pubescent. Thorax black or blue-black, ashy pollinose, in some lights showing four dark vittae; scutellum with the apex more or less reddish. Legs, including the coxae, reddish; tarsi black or brown. Wings cinereous hyaline, somewhat yellowish basally. Squamae whitish, with yellowish tinge; halteres reddish. Abdomen black, evenly clothed with brownish-cinereous pollen, which may have a yellowish cast in some lights.

♀. Front as wide as either eye, with two pairs of orbital bristles; abdominal pollen cinereous; abdominal hair more appressed.

Type ♂, allotype ♀, and one paratype of either sex, New South Wales, 18.10.1916 (No. 62, W. W. Froggatt), ex Saunders case moth.

THRYCOLYGA Rondani.

There are before me two species of *Thrycolyga* from Queensland, both very similar in appearance but displaying marked genitalic differences in addition to differences in the number of bristles on the tibiae and the colour of the frontal pollen. One of these I have determined as *flaviceps* Macquart, whilst the other is described as new. Both species have only very short hair on the eyes, and at first glance would appear to belong to the genus *Exorista* Meigen in which the eyes are bare. Malloch records *T. sorbillans* from Queensland and states that *Podomyia* is a synonym of this genus. In *Podomyia* the eyes are entirely bare, the genus differing from *Sturmia* only in having the facial ridges bristled on more than the lower half.

Key to males of Thrycolyga recorded from Australia.

1. Posterior forceps with ordinary hair 2
 Posterior forceps on the posterior or basal half bearing very dense yellow hair
 *sorbillans* Wiedemann.
2. Penis short and more or less angled; parafrontals bright yellow pollinose
 *curriei*, n. sp.
 Penis long, slender, curved; parafrontals cinereous-pollinose; middle tibiae with three
 anterodorsal bristles *flaviceps* Macquart.

THRYCOLYGA FLAVICEPS Macquart. Fig. 1.

Exorista flaviceps Macquart, *Dipt. Exot.*, Suppl. 2, 1847, 83 (67).

♂, Biloela, Q., 8.2.1925 (F.G.H.), ex *Conogethes punctiferalis*; ♂, Yanco, N.S.W., 1916.

Whether or not this is *flaviceps* will probably never be settled, since the description would fit a great many species of Tachinids and the type is probably lost. However, Brauer and Bergenstamm have placed the species in *Thrycolyga*, and the specimens agree with the description much better than the second species before me. The species is, in addition, widely distributed.

THRYCOLYGA CURRIEI, n. sp. Fig. 2.

Black, the cinereous pollen more or less tinged with yellow; palpi reddish-yellow; scutellum brownish-yellow, darker basally. Length, 7.5 to 13 mm.

♂. Head apparently brownish-red in ground colour, the occiput black, clothed with white pollen, the frontal pollen and that on the upper part of the parafacials and occiput bright yellow. Front with seven or eight pairs of bristles, the upper three pairs reclinate, the lower three below the base of the antennae; frontal vitta brown, narrowed above, not as wide as parafrontal, the front only a little narrower than the greatest width of either eye. Vertical bristles directed backwards; outer



1.—*Thrycolyga flaviceps* Macquart. 2.—*T. curriei*, n. sp.

verticals absent; occiput thickly white-pilose; occipital cilia in a single row extending to the cheeks; cheeks almost one-fourth as wide as eye-height, with fine black hair which becomes pale on the anterior part. Parafacials wider than third antennal segment, of almost equal width throughout. Vibrissae situated above the oral margin; about five bristles on the lower fourth of the facial ridges; depression sub-carinate. Antennae black, the second segment mostly reddish, somewhat elongate; third segment two and one-half times as long as the second; arista thickened on basal half. Palpi reddish-yellow. Eyes with sparse, short hair. Thorax thickly pollinose, with four sub-shining black vittae; bristles complete; sternopleurals 2-1, the lower one small. Scutellum with three pairs of strong marginals and a weak, convergent apical pair. Legs black; middle tibiae with two anterodorsal bristles on the basal half; pulvilli long, yellowish-brown; posterior tibiae sub-ciliate. Wings cinereous-hyaline, tinged with luteous basally; squamae cinereous-yellow; halteres reddish. Abdomen shining black, a little more than

the basal half of the second to fourth segments cinereous-pollinose, the pollinose bands on the second and third segments somewhat narrowed on either side of the middle and more or less distinctly interrupted by a slender median line. First and second segments each with a pair of short marginals, the third and fourth with row of strong ones. Hair subappressed except on the fourth segment. Fourth sternite convex apically and slightly produced downwards. Posterior forceps united to form a long, slender beak, not unusually hairy; penis short and thick (fig. 2).

♀. Front wider, white pollinose, only moderately yellowish above; two pairs of orbitals; outer verticals strong; cheeks with less abundant, coarser black hair, and narrower. Abdomen with whitish-cinereous pollen, the marginal bristles on the second segment long and strong; squamae more whitish.

Type ♂, Lawnton, Queensland, 25.9.1927 (G. A. Currie); allotype ♀, same data, both ex cutworm; paratypes, ♂, ♀, Biloela, Queensland, 11.2.1927 and 20.2.1927, ex *Heliothis obsoleta*. The ♂ paratype has been attacked by pests and lacks the genital organs.

There may be some doubt as to this species belonging to the genus *Thrycolyga* because of the presence of only three bristles below the base of the antennae, but the lowest one is situated only a little above the middle of the parafacial.

ZENILLIA Desvoidy.

Of the species of *Zenillia* (*Exorista* auct. and *Eurigaster*, pt.), described from Australia, I have been able to recognize only one, and even this may be incorrectly determined. The following key separates the species before me.

Table of Species.

1. Tibiae black or brownish-red	2
Tibiae clear reddish	<i>lata</i> Macquart
2. Palpi reddish	3
Palpi black	<i>nitidicauda</i> , n. sp.
3. Sternopleurals 1-1	4
Sternopleurals 2-1 or 2-2	7
4. Epaulet black or brown	5
Epaulet yellowish or reddish	10
5. Middle tibiae with only one anterodorsal bristle	6
Middle tibiae with two or three anterodorsal bristles	<i>doddi</i> , n. sp.
6. Pollen on the fourth abdominal segment apparently very broadly interrupted	
.....	<i>hardyi</i> , n. sp.
Pollen on the fourth abdominal segment forming an entire band	<i>murina</i> , n. sp.
7. Sternopleurals 2-1	8
Sternopleurals 2-2	11
8. Mesonotum with ordinary blackish vittae, not fasciate	9
Mesonotum with a transverse black spot behind the suture	<i>picta</i> , n. sp.
9. Scutellum entirely black in ground colour	<i>tristis</i> , n. sp.
Scutellum mostly reddish in ground colour	<i>sapiens</i> , n. sp.
10. Anterior tibiae with two posterior bristles	<i>noctuae</i> , n. sp.
Anterior tibiae with only one posterior bristle	<i>cosmophilae</i> , n. sp.
11. Ocellars absent	<i>taylori</i> , n. sp.
Ocellars long and strong	<i>quadrisetosa</i> , n. sp.

ZENILLIA MURINA, n. sp.

Resembles the African *Zenillia evolans* Wiedemann, but is at once distinguished by the very weak ocellar bristles and the presence of but one posterior bristle on the anterior tibiae. I do not know whether this species and *cosmophilae* should be retained in *Zenillia*, inasmuch as they lack the second bristle on the anterior tibiae. This is usually a very reliable character, and even though the resemblance of these species to the African forms is most remarkable it might well be that they should be separated generically. Length, 10 to 11 mm.

♂. Head black, the parafacials and anterior oral margin reddish, the whole densely white-pruinose, the front tinged with yellow above. Front almost or quite half as wide as greatest width of either eye, widening on the anterior two-thirds; frontal vitta blackish, narrower than either parafrontal; about twelve pairs of frontals, the lowest five pairs situated below the base of the antennae; the upper two pairs reclinate; immediately outside each row of frontals some bristly hairs and outside these scattered, short black hair; ocellars weak. Occipital cilia black; the pile white; cheeks about one-tenth as wide as eye-height, black-haired. Parafacials wider above than the third antennal segment, narrowed below; vibrissae level with the anterior oral margin; four or five fine bristles immediately above them on the facial ridges. Palpi reddish. Antennae black, the third segment three times as long as the second; arista slender, thickened on the basal two-fifths. Eyes with pale yellow pile. Thorax thickly cinereous-pollinose, the four dark vittae moderately distinct. Chaetotaxy normal; sternopleurals 1-1. Scutellum yellowish-red, with four pairs of marginals, the apical pair cruciate. Hair wholly black. Legs black; middle tibiae with a single anterodorsal bristle; posterior tibiae closely ciliate, the anterior tibiae with only one posterior bristle; pulvilli elongate. Wings cinereous-hyaline, tinged with luteous basally; squamae and halteres yellowish. Abdomen black, cinereous-pollinose, the apical third of the second to fourth segments and an obscure median vitta, bare or nearly so, the pollen inclined to be tessellate. First and second segments each with a pair of marginals, the third and fourth each with a row, the fourth with scattered erect bristles on whole dorsal surface.

Type ♂, Wee Waa, N.S.W., 14.10.1908, ex *Darala* sp., in British Museum of Natural History; paratypes, 2 ♂, Kuranda, Queensland (F. P. Dodd), in collection of Mr. C. J. Wainwright and American Museum of Natural History.

ZENILIA NOCTUAE, n. sp.

Very similar in appearance to the African *Z. illota* Curran and differing only in having the shining apices of the segments broader, smaller size, and different posterior spiracles in the pupae. Black, the palpi and scutellum reddish, the antennae sometimes reddish basally; pollen cinereous. Length, 8 to 9 mm.

♂. Parafacials reddish in ground colour. Head silvery-white pollinose, the frontal vitta black, narrower than either parafrontal, widening slightly anteriorly. Front two-thirds as wide as greatest width of either eye; seven to nine pairs of frontals, the lower two pairs situated below the base of the antennae, the upper two pairs reclinate; hair short and not abundant; ocellars long, the ocellar triangle more or less yellow-pollinose; outer verticals absent; occipital cilia long and slender, in a single row; pile of occiput white. Cheeks not wider than one-tenth the height of either eye, with sparse, black hairs. Vibrissae situated almost on a level with the oral margin and only two or three weak bristles on the ridges above them; parafacials not as wide above as the width of the third antennal segment, strongly narrowing below. Palpi reddish. Antennae black; second segment sometimes largely reddish; third segment about three times as long as the second, convex apically; arista somewhat thickened on the basal two-fifths. Eyes white-pilose. Thorax black, thickly cinereous-pollinose, the dark mesonotal stripes weakly developed; chaetotaxy typical; four pairs of marginal scutellars, the apical pair strong and cruciate; sternopleurals 1-1. Hair wholly black. Scutellum reddish-yellow in ground colour, black basally. Legs black; middle tibiae with a single anterodorsal bristle; posterior tibiae evenly ciliate; pulvilli short, greyish-brown. Wings cinereous-hyaline, tinged with luteous basally; third

vein with three bristles at the base. Squamae yellowish-white; halteres reddish. Abdomen black, cinereous-pollinose, the first segment wholly, the apical third of the three following and an obscure median vitta on the second and third segments, bare; sides of second segment sometimes broadly reddish basally. First and second segments each with a pair of marginals, the third and fourth with a row, the fourth with a row of discals and with bristly, erect hair.

♀. Front with two pairs of orbitals; outer verticals well developed, otherwise as in the male.

Type ♂, ex cutworm, Lawnton, Queensland, 25.11.1927; allotype ♀, Biloela, Queensland, 12.2.1927, ex *Heliothis obsoleta*; paratypes, Biloela, 14.2.1927 (G. A. Currie); ♂, Queensland, 7.7.1924, ex *Cosmophila flava*; ♀, Darwin, N. Territory, 23.2.1914 (G. F. Hill); 2 ♂, 1 ♀, Brisbane, Queensland (Dr. A. J. Turner); ♂, Magnetic Is., Queensland, Jan., 1929 (J. W. Fielding); ♀, Palm Island, Queensland (Mrs. F. H. Taylor); ♀, Eungella, Queensland, Oct., 1928 (Dr. A. J. Turner).

ZENILLIA COSMOPHILAE, n. sp.

This species so closely resembles *noctuae*, n. sp., that I at first considered the specimens as all belonging to one species. In view of the similarity in appearance, it is only necessary to point out the differences between the two.

In *cosmophilae* the parafrontals of the male are usually more or less yellowish-pollinose. The outstanding difference is to be found in the length of the pulvilli: in this species they are very long and of a cinereous-white colour whilst *noctuae* has them short and greyish-brown. The females of the two species are more difficult to separate, but the yellow or yellowish-tinged frontal pollen, and single posterior bristle on the anterior tibiae, is typical of *cosmophilae*, whilst *noctuae* has the frontal pollen yellow only on the ocellar triangle and the anterior tibiae bears two posterior bristles. The length is between 8.5 and 9.5 mm.

Type ♂, Queensland, 7.7.1924, ex *Cosmophila flava*, in British Museum of Natural History. Allotype ♀; paratypes, 2 ♂ and one ♀, Kuranda, Queensland, Sept., 1910 (F. P. Dodd), in collection of Mr. C. J. Wainwright and the American Museum of Natural History; ♂, ♀, Palm Island, and 2 ♂, Watten (Mrs. F. H. Taylor); ♂, Mt. Molloy, ♂, Townsville, and 2 ♂, Cairns (F. H. Taylor); the latter reared from *Cirphis unipuncta*; ♂, ♀, Brisbane, in house, Sept., 1929 (Dr. A. J. Turner).

ZENILLIA HARDYI, n. sp.

Black, the abdomen largely reddish; pleura wholly black-haired. Length, 8.5 to 10 mm.

♂. Head cinereous to white pollinose. Front about one-third as wide as greatest width of either eye; frontal vitta black, usually considerably narrower than either parafrontal, rarely almost as wide anteriorly; about fourteen pairs of frontals, the lower three pairs situated below the base of the antennae, the upper two reclinate, those toward the upper part of the front weaker and shorter; hair rather abundant; ocellars fine but long. Outer verticals absent; occipital cilia in a single row, fine; pile white. Cheeks one-twelfth to one-fourteenth as wide as eye-height, covered with short pile except along the orbits. Parafacials narrow, widening above; vibrissae situated level with the oral margin, the ridges on the lowest fourth with many bristly hairs or weak bristles. Palpi reddish. Antennae black, the third segment rather narrow, obtusely rounded apically, about three times as long as the second; arista slender, thickened on the basal third. Eyes tawny pilose. Thorax black, the sides of the mesonotum more or less brownish-

red; pollen fairly thick; varying from cinereous to cinereous-brown, the vittae narrow but distinct; in some specimens the mesonotum is rather shining from dorsal view. Chaetotaxy complete, four pairs of marginal scutellars, the apical pair cruciate; sternopleurals 1-1; pleura wholly black-haired. Legs black, the tibiae sometimes more or less brownish-red. Middle tibiae with a single anterodorsal bristle; posterior tibiae long ciliate; pulvilli rather long. Wings cinereous-hyaline, more or less tinged with brown in front; epaulet black. Squamae greyish-white. Halteres reddish. Abdomen reddish and black, with white or cinereous pollen. First segment reddish, the median third black; second reddish with a broad median vitta which expands posteriorly and sometimes a more or less distinct posterior fascia, black; third segment reddish with a broad median vitta and the apical third or more black; fourth segment variable, usually reddish with a very broad, incomplete, black median vitta or spot. The pollen forms interrupted bands on the basal two-thirds or less of the second and third segments; on the fourth segment it is usually tinged with brownish-yellow and covers almost the whole segment, but when viewed with the naked eye it appears to form a very broadly interrupted band. First and second segments each with a pair of marginals, the third with a row; fourth segment with erect, bristly hair; the hair on the middle of the two preceding segments rather erect and longer than on the sides.

♀. Front three-eighths as wide as either eye; two pairs of frontals; frontal pollen strongly tinged with yellowish. Abdomen usually darker, the segments with more distinct black apical fasciae.

Type ♂ and allotype ♀, Brisbane, Queensland (Dr. A. J. Turner), in the collection of the School of Public Health and Tropical Medicine, University of Sydney; paratypes, 6 ♂, 2 ♀, Brisbane (Dr. Turner); ♂, Townsville, Queensland (Dr. Welch).

ZENILLIA DODDI, n. sp.

Black, the sides of the second abdominal segment more or less reddish; pollen cinereous; sternopleurals 1-1; middle tibiae with two anterodorsal bristles. Length, 11 to 12 mm.

♂. Head white pollinose, the front yellowish. Front about four-fifths as wide as greatest width of either eye; frontal vitta blackish, a little more than half as wide as either parafrontal; nine pairs of frontals, the upper two reclinate, the lowest three pairs situated below the base of the antennae, the rows strongly diverging; ocellars strong. Outer verticals absent; occipital cilia in a single row; pile white. Cheeks almost one-third as wide as eye-height, with black hair, that on the upper part fine. Parafacials as wide as the third antennal segment, slightly narrowing below. Vibrissae situated distinctly above the oral margin, the ridges with four or five bristly hairs immediately above them. Palpi reddish. Antennae black, the second segment and base of the third more or less reddish; third segment little more than twice as long as the second, moderately broad, obtuse apically, the upper corner sharply rounded; arista missing. Eyes cinereous-white pilose. Thorax cinereous-pollinose, the four dark vittae narrow but distinct. Chaetotaxy normal; scutellum with four pairs of marginals, the apical pair strong and cruciate; sternopleurals 1-1. Hair black. Scutellum brownish-yellow in ground colour. Legs black; middle tibiae with two strong anterodorsal bristles; posterior tibiae not ciliate; pulvilli elongate. Wings cinereous-hyaline, the base tinged with yellow. Squamae cinereous-white; halteres yellow. Abdomen black, the sides of the second segment reddish on the basal three-fifths; slightly more than the

basal half of the second to fourth segments, cinereous pollinose, the pale bands appearing narrowly interrupted from most views. First and second segments with pair of marginals, the third and fourth each with a row; fourth segment with a row of marginals and sub-erect bristly hair.

Type ♂ and ♂ paratype, Herberton, Queensland, 12.1910. The type is in the Deutsches Entomologisches Museum, the paratype in the American Museum of Natural History.

ZENILLIA PICTA, n. sp.

Thorax yellow-pollinose, with a transverse black spot immediately behind the suture; wings brown in front except apically. Length, 7 to 7.5 mm.

♂. Face and lower half of the occiput whitish-pollinose, more or less tinged with yellow; cheeks, front, and upper half of the occiput pale golden-yellow. Front half as wide as greatest width of either eye, the frontal vitta blackish, narrower than either parafrontal except above; seven or eight pairs of frontals, the lowest four pairs situated below the base of the antennae, the upper two strong and reclinate; ocellars well developed. The black occipital cilia do not extend to the cheeks; pile white on the occiput and posterior half or more of the cheeks, the latter two-sevenths as wide as the eye-height. Parafacials narrower than the third antennal segment; vibrissae situated slightly above the anterior oral margin, the ridges with several bristly hairs above them. Palpi reddish. Antennae black, the second segment more or less reddish, short; third segment very long, more than five times as long as the second, of moderate width; arista thickened on the basal third. Eyes yellow pilose. Thorax golden-yellow, the deep black vittae in front of the suture paired and strong, not quite reaching the broad incomplete, transverse post-sutural band; posterior calli shining brown. Chaetotaxy complete, four pairs of marginal scutellars, the apical pair weak and cruciate; sternopleurals 2-1. Scutellum black, the apical third reddish in ground colour and densely yellow-pollinose. The pleural pollen becomes paler below. Hair wholly black. Legs black or brown; anterior tibiae with two posterior bristles, the middle pair with a single anterodorsal; posterior tibiae sparsely ciliate; pulvilli moderately long. Wings cinereous hyaline, the costal border, tapering to the end of the subcostal cell, brown, the base of the wings paler. Squamae whitish-yellow; halteres brownish-yellow. Abdomen black or brown, with narrow, yellowish or cinereous pollinose fasciae on the second to fifth segments, that on the second segment very narrow and obsolete on the median third, all the fasciae greatly widening on the venter; first segment with a pair of weak, the second with strong marginals, the third and fourth each with a row; hair sub-erect to erect on the median portions of the segments, entirely erect on the fourth.

♀. Front a little more than three-fifths as wide as either eye; two pairs of orbitals; middle tibiae with two anterodorsal bristles; pollinose band on second abdominal segment entire. In the female the black fascia on the mesonotum occupies about half the postsutural area, whereas, in the male, it occupies distinctly more than half.

Type ♂, Herberton, Queensland, 2.1911 (F. P. Dodd), in Deutsches Entomologisches Museum; allotype ♀, and two ♀ paratypes, Brisbane, Queensland (Dr. A. J. Turner) in the collection of the School of Public Health and Tropical Medicine, University of Sydney, a paratype in the American Museum of Natural History.

ZENILLIA NITIDICAUDA, n. sp.

Black, including the palpi and scutellum, the pollen whitish cinereous. Length, 9.5 to 11 mm.

♂. Parafacials reddish in ground colour; head white-pollinose. Front hardly two-thirds as wide as greatest width of eye, widening on the anterior half; frontal vitta black, about as wide as either parafrontal; about twelve pairs of rather fine frontals, the lower two pairs situated below the base of the antennae, the upper three or four reclinate; ocellars long. Occipital cilia in a single row; pile white; cheeks three-tenths as wide as the eye-height, with black hair on lower fourth. Vibrissae situated level with the oral margin; five or six bristles on the ridges immediately above them. Parafacials about as wide as the antennae, slightly narrowing below. Palpi black. Antennae black, the second segment more or less reddish, almost half as long as the third; third segment elongate, widest on the apical half, the apex very obtusely rounded; arista thickened on basal fifth. Eyes white pilose. Thorax thickly cinereous-pollinose, the black vittae narrow and poorly developed. Chaetotaxy complete; four pairs of marginal scutellars, the apical pair cruciate; sternopleurals 2-1. Hair wholly black. Scutellum entirely black in ground colour. Legs black; middle tibiae with two strong anterodorsal bristles; posterior tibiae with a row of anterodorsals, not ciliate; anterior tibiae with two posterior bristles. All the pulvilli elongate, yellowish. Wings cinereous hyaline; third vein with three or four bristles basally. Squamae whitish. Halteres with brown knob. Abdomen black, the second and third segments cinereous-pollinose on the basal two-thirds, less thickly so in the middle, the pollen appearing slightly tessellate in some views. First and second segments each with a pair of marginals, the third and fourth each with a row, the fourth with erect bristly hair.

Type ♂, Cairns, Queensland; paratypes, 2 ♂, Mt. Molloy, Queensland (F. H. Taylor), ♂, Palm Island, Queensland (D. H. K. Lee), in the collection of the School of Public Health and Tropical Medicine, University of Sydney. Paratype in American Museum of Natural History.

ZENILLIA TRISTIS, n. sp.

Black, with cinereous pollen; sternopleurals 2-1; facial ridges with bristly hairs on the lowest third. Length, 8 to 9 mm.

♀. Head white-pollinose, the front somewhat more cinereous. Front almost four-fifths as wide as greatest width of either eye; frontal vitta blackish, almost as wide as either parafrontal; six or seven pairs of frontal bristles, the lowest two situated below the base of the antennae, the upper two pairs reclinate; hair very sparse; ocellars long and strong. Outer verticals weak; occipital cilia in a single row; pile white. Cheeks almost one-fourth as wide as the eye-height, black-haired. Parafacials narrower than the third antennal segment, narrowing below; vibrissae situated level with the oral margin, the ridges with short, bristly hairs on about the lowest third. Palpi reddish. Antennae black; third segment about two and one-half times as long as the second, the apex obtuse; arista slender, tapering on the basal half. Thorax black, cinereous-pollinose, the black vittae poorly developed. Chaetotaxy complete; four pairs of marginal scutellars, the apical pair fairly strong and cruciate; sternopleurals 2-1. Scutellum wholly black in ground colour, densely whitish-pollinose except on the broad base. Hair black. Legs black; middle tibiae with three anterodorsal bristles, the posterior pair not ciliate. Wings cinereous-hyaline. Squamae cinereous-white; halteres reddish. Abdomen black, with cinereous-white pollen which forms bands across the anterior two-fifths of the second to fourth segments, the bands, in some lights, interrupted in the middle. First and second segments each with a pair of marginals, the third and fourth each with a row; fourth segment with an irregular row of discals and erect, bristly hairs.

Type ♀, Cairns, Queensland, 1917, in Deutsches Entomologisches Institute; paratype ♀, Mt. Molloy, Queensland (F. H. Taylor), in the collection of the School of Public Health and Tropical Medicine, University of Sydney.

ZENILLIA TAYLORI, n. sp.

A small species resembling *cosmophilae* but with four sternopleural bristles which at once distinguish it from any Australian species except *quadrisetosa*. Length, 7 to 7.25 mm.

♂. Head white-pollinose, the front more cinereous. Front more than half as wide as greatest width of either eye, the black frontal vitta little more than half as wide as either parafrontal; eight or nine pairs of frontal bristles, the lowest three pairs situated below the base of the antennae, the upper pair reclinate, hair fairly abundant; ocellars and outer verticals absent. Occipital cilia in a single row; pile yellowish-white; cheeks almost one-fourth as wide as eye-height, with short black hair except above. Parafacials less than half as wide as the third antennal segment; vibrissae situated slightly above the oral margin, the ridges with four or five bristles immediately above them. Palpi reddish. Antennae black, the second segment short, the third a little more than three times as long, moderately broad and obtuse at the apex; arista thickened on the basal third. Eyes with cinereous pile. Thorax black, with cinereous-white pollen, the mesonotum only thinly pollinose and the vittae indistinct. Chaetotaxy complete; scutellum with three or four pairs of strong marginals, the second pair absent or present, the apical pair parallel and strong, the true apicals absent; sternopleurals 2-2. Scutellum rather shining brownish-red, the base black. Legs black; anterior tibiae with two posterior bristles; the middle pair with two anterodorsals, the posterior tibiae long ciliate; pulvilli of medium length, pale yellowish. Wings cinereous-hyaline; third vein with three or four basal bristles. Squamae whitish; halteres reddish. Abdomen black, with cinereous pollen, the sides of the second and third segments more or less reddish on the basal half. The pollen leaves somewhat more than the apical fourth of the second and third segments bare, and is brown along the middle line, the fourth segment with almost the apical half bare. First and second segments without median marginals, the third and fourth each with a row, the fourth with a row of discals. Hair erect on the fourth segment.

Type ♂ and one paratype, Innisfail, Queensland (F. H. Taylor). Type in the collection of the School of Public Health and Tropical Medicine, University of Sydney.

It is possible that a new genus should be erected for this species, but until both sexes are known I leave it provisionally in *Zenillia*. The species following is very much like *taylori* but ocellars are present, the first two abdominal segments bear marginals and the thorax is thickly cinereous-pollinose. I do not think that these forms represent the two sexes of the same species, but such may be the case. Until specimens have been taken together they may be considered as distinct species.

ZENILLIA QUADRISSETOSA, n. sp.

At once distinguished from *taylori* by the presence of strong ocellar bristles, etc. Length, 7.25 mm.

♀. Head white-pollinose, the frontal pollen with yellowish tinge. Front a little more than three-fifths as wide as greatest width of either eye, gently widening anteriorly; eight pairs of frontals, the lowest three pairs below the base of the

antennae, the upper two reclinate; hair sparse; ocellars long and strong. Outer verticals long; occipital cilia in a single row; pile yellowish-tinged; cheeks about one-seventh as wide as eye-height, haired except above. Parafacials less than half as wide as the third antennal segment, widened above. Vibrissae situated almost level with the oral margin, the ridges with four or five bristles immediately above them. Palpi reddish, slightly elongated. Antennae black, the third segment more than three times as long as the second, moderately broad, its sides parallel, the apex obtuse; arista thickened on basal third. Eyes with pale-yellowish pile. Thorax black, thickly cinereous-pollinose, the black vittae weakly developed. Chaetotaxy complete; scutellum with three pairs of marginals and a very weak, upturned apical pair, the apical border broadly reddish-yellow in ground colour; sternopleurals 2-1. Legs black; anterior tibiae with two posterior bristles; middle tibiae with a single anterodorsal bristle, the posterior pair sparsely long ciliate; pulvilli short. Wings cinereous-hyaline, the base a little yellowish. Squamae whitish; halteres reddish. Abdomen black, the second segment broadly reddish on the sides of the anterior two-thirds; second to fourth segments cinereous-pollinose, the apical third of each segment and a sub-obsolete median vitta, shining or dark. First and second segments each with a pair of marginals, the third and fourth with a row, the fourth with a row of discals and erect hair.

Type ♀, Palm Island, Queensland (Mrs. F. H. Taylor), in the collection of the School of Public Health and Tropical Medicine, University of Sydney; paratype ♀, Kuranda, Queensland, in American Museum of Natural History.

ZENILLIA SAPIENS, n. sp.

Black, with cinereous pollen; sternopleurals 2-1; middle tibiae with two anterodorsal bristles; pulvilli elongate. Length, 12.5 mm.

♂. Head whitish-pollinose, the front cinereous-yellow. Front four-sevenths as wide as greatest width of either eye; frontal vitta blackish, narrower than either parafrontal; ten or eleven pairs of frontals, the lowest three pairs situated below the base of the antennae in strongly diverging rows, the upper two pairs reclinate; ocellars long and strong, hair on parafrontals fine and long. Outer verticals not developed; a row of black setae behind the occipital cilia; pile white. Cheeks more than one-fourth as wide as eye-height. Vibrissae situated slightly above the oral margin, the ridges with bristly hairs on almost the lower half; parafacials almost as wide as the third antennal segment, gently narrowing below. Palpi reddish. Antennae black, the third segment two and a half times longer than the second, moderately wide, the apex oblique above (perhaps an abnormal condition); arista missing. Thorax cinereous-pollinose, with yellowish tinge dorsally, the black vittae narrow. Chaetotaxy complete. Four pairs of marginal scutellars, the apical pair strong and cruciate; sternopleurals 2-1; hair black. Scutellum reddish in ground colour, the base broadly blackish. Legs black; posterior tibiae closely ciliate. Wings cinereous-hyaline, broadly tinged with brown in front; epaulet black. Squamae white; halteres reddish-yellow. Abdomen black, with cinereous pollen, the sides of the second segment more or less reddish on the basal half. The pollen forms fasciae on the second to fourth segments, that on the second occupying a little less than the basal half, those on the third and fourth slightly more than the basal half, all the fasciae almost interrupted in the middle by a slender black line. First and second segments each with a pair of quite short marginals, the third and fourth each with a row, the fourth with a row of stouter discals and erect bristly hair.

Type ♂, Philippine Islands (Osten-Sacken Collection), in the Deutsches Entomologisches Museum.

Additional Species of Zenillia described from Australia.

Inasmuch as the descriptions of the following species are incomplete and will agree with several forms occurring in the region, it is impossible to associate specimens with them and only an examination and elucidation of the types will render the names available. It is probable that some of the species described as new in the foregoing pages will prove to be synonyms. It cannot be assumed, however, that all, or any, of the species listed below actually belong to *Zenillia*, since the generic characters were very broadly interpreted by early authors.

Tachina (Carcelia) coras Walker, *List Dipt. Brit. Mus.*, iv, 1849, 785 (W. Austr.).

Exorista dispar Macquart, *Dipt. Exot.*, Suppl. iv, 1850, 159 (186) (Austr.).

Exorista diversicolor Macquart, *Dipt. Exot.*, Suppl. ii, 1847, 83 (Tas.).

Exorista flaviceps Macquart, *Dipt. Exot.*, Suppl. ii, 1847, 83 (Tas.).

Exorista marginata Macquart, *Dipt. Exot.*, Suppl. iv, 1850, 161 (Tas.).

Exorista melas Bigot, *Ann. Soc. Ent. France*, 1888, 256 (Tas.).

Tachina (Phryno?) remota Walker, *Dipt. Saunders.*, 1852, 280 (N.S.W.).—

This is apparently a *Phorocera*, although *Z. tristis* n. sp. has the facial ridges with hairs half-way up. Perhaps the two names apply to the same species.

Exorista rufomaculata Macquart, *Dipt. Exot.*, Suppl. iv, 1850, 160 (Tas.).

Exorista translucens Macquart, *Dipt. Exot.*, Suppl. iv, 1850, 162 (Tas.).